JPEO-CBD

## Organization

The US Army Product Manager, Force Protection Systems (PM-FPS), is the Army Materiel Developer for Force Protection Systems. PM-FPS is a product management organization under the Joint Program Executive Office, Chemical and Biological Defense (JPEO-CBD).

## Mission

Provide cost-effective, state-of-the-art, and logistically supportable physical security and force protection systems to installations and tactical forces deployed worldwide.

## Program Management

*Product Manager* - LTC Brian P. Shoop, PM-FPS
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## Additional Information

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www.pm-fps.army.mil

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# MDARS

## Mobile Detection Assessment Response System

***Security Technology Enhancement***

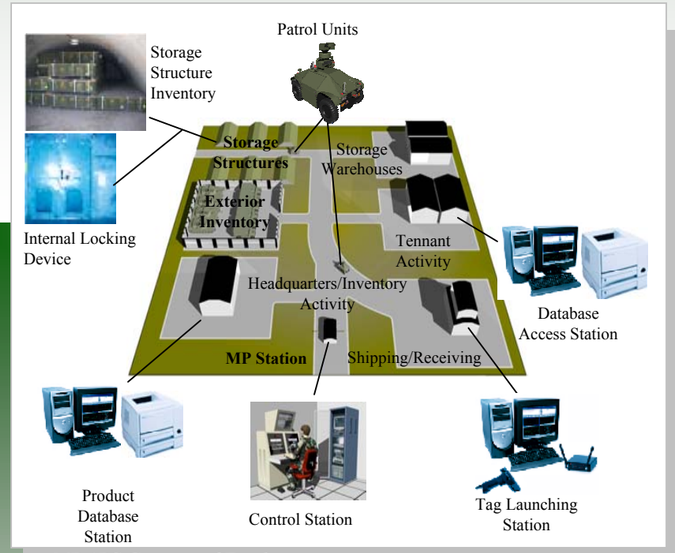
**The Department of Defense** (DoD) annually faces account discrepancies for an inventory worth millions of dollars. To further compound the problem, installations throughout DoD have been directed to reduce the cost of security and inventory control personnel as the Government downsizes and restructures. However, even with reduced budgets and manning levels, commanders now have a radical, yet prudent, approach to combat theft. The approach is MDARS.


**MDARS**, a DoD effort, combines the best the Army, Navy, Air Force, and commercial industry have to offer into a mobile, semiautonomous, robotic security vehicle. MDARS focuses on both the asset and the facility where it is stored. It is designed to operate in materiel storage yards, arsenals, petroleum storage areas, airfields, rail yards, and port facilities.

# Robotic Technology

## On Patrol

MDARS will patrol primarily during nonduty hours. While on random patrol, the MDARS platform will autonomously conduct surveillance, check for intruders, conduct lock and inventory interrogations, and assess the status of facility barriers, such as fence lines, gates, and bunker doors. Input from the control station is required only if an intruder is detected, a lock is found open, or the platform encounters a situation that it is not programmed to handle.



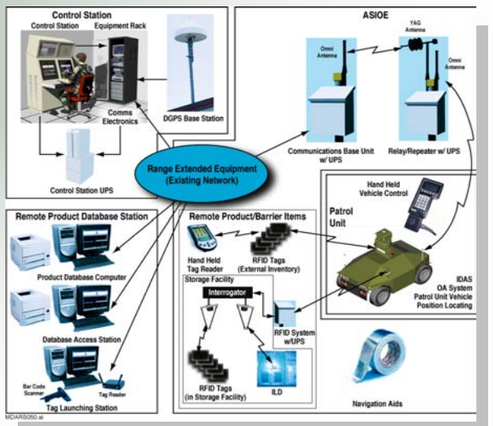

*MDARS Concept of Employment*

If MDARS detects an intruder or an open lock, the video link with the control station is activated and an audible/visual alarm registers at the control console. The security officer is able to see, hear, and talk to the intruder or remotely examine the scene of the lock violation. Even in the dark, the MDARS infrared camera can keep the person under surveillance until security forces arrive. If the intruder tries to avoid MDARS, the security guard can track the trespasser with the camera and remotely maneuver the platform to follow the individual.

## Sensor Suite

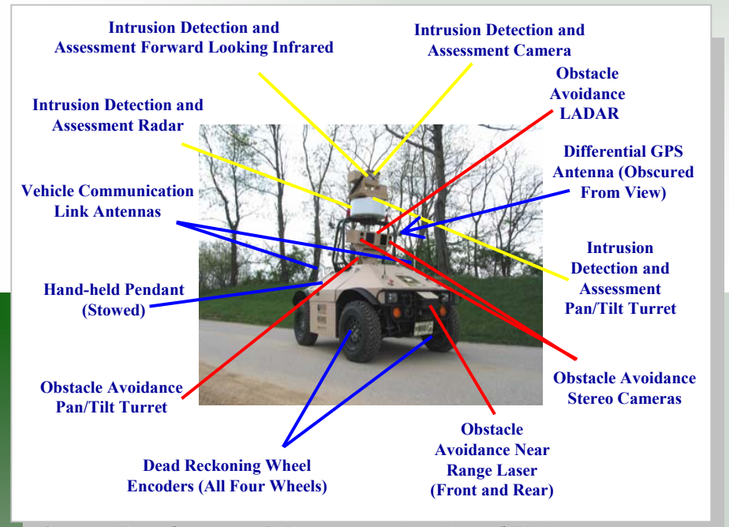
- Navigation Sensors
  - Differential Global Position System (GPS)
  - Dead reckoning system
    - Inertial reference unit
    - Four-wheel encoders
- Obstacle Avoidance Sensors
  - Stereo vision
  - Laser detection and ranging
  - Near-range laser
- Intrusion Detection and Assessment Sensors
  - Forward-looking infrared (assess intruders to 150-200m)
  - Color camera (and spotlight)
  - Scanning radar (detect intruders out to 300m)
  - Directional microphone
    - 2-way audio
- Lock and Inventory Sensors
- Communications (Range LOS of 300m from repeaters)

## System Architecture




## A Supportable System

A well-defined logistics system will support MDARS through its 10-year service life. Maintenance and supply concepts will compliment existing operations. To the maximum extent possible, operator, diagnostic, and maintenance procedures will be embedded into the MDARS hardware and software.




*System Development & Demonstration Patrol Unit*

## Lock and Product Assessment

While on patrol, MDARS will remotely read locks and inexpensive radio frequency tags affixed to selected high-dollar or special interest items. A problem with a lock will send an immediate alarm to the operator's console. Tag tracking data will provide an audit trail to assist in the recovery of lost or stolen tagged items.

Routine tag data gathered by MDARS will be used by depot personnel for accountability of tagged items. Key distribution processes such as receiving, issue, and physical inventory can be done more accurately and efficiently with MDARS providing regular inventories and security checks.

## Platform Specifications

- Vehicle Dimensions
  - Length: 98.00 inches
  - Width: 62.50 inches
  - Height:
    - Platform: 46.00 inches
    - Payload: 102.00 inches
- Ground Clearance:
  - 10.00 inches
- Primary Power:
  - 42-horsepower diesel engine
- Drive:
  - 4-wheel hydrostatic
- Steering:
  - Ackerman (hydraulically actuated)
- Top Speed:
  - 20 miles per hour
- Vehicle Weight:
  - 3,450 pounds
- Climbing Capacity:
  - 30 degrees, traction limited
- Outside Turning Radius
  - 11.8 feet
- Side Slope Stability:
  - >30 degrees